

REMARKS

I. Status of the Application

Claims 23 and 25-35 are pending in this application. In the May 31, 2006 office action, the Examiner:

A. Rejected claims 23, 25-27, 29, 30 and 32-35 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Pub. 2002/0096691 to Disney (hereinafter, "Disney");

B. Rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Disney in view of U.S. Patent Pub. 2004/0222461 to Peyre-Lavigne et al (hereinafter, "Peyre-Lavigne"); and

C. Rejected claim 31 under 35 U.S.C. § 103(a) as being unpatentable over Disney in view of U.S. Patent Pub. 2002/0137292 to Hossain et al. (hereinafter, "Hossain").

In this Response, Applicant has amended claims 25 and 32. Support for the amendments to claims 25 and 32 may be found in the originally filed specification with respect to Figs. 1 and 2 and the related description. Applicants have also added new claims 36-43. Applicants respectfully request reconsideration of pending claims 23 and 25-35, and examination of new claims 36-43 in view of the foregoing amendments and the following remarks.

II. The Examiner's Rejection of Independent Claims 23 and 32 Under 35 U.S.C. § 102(b) Should Be Withdrawn

In the May 31, 2006 Office action, the examiner rejected claims 23 and 32 under 35 U.S.C. § 102(b) as being anticipated by Disney. As provided in MPEP § 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). In addition, the elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

A. Disney

The Disney reference discloses a high-voltage transistor having a buried conduction layer. In accordance with Disney, a substrate 10 is provided having a well 12 in which the source 19 and the drain 18 are formed. A gate 22 is also provided and the channel region 31 is defined between a diffusion region 16 and the source 19. In addition, as can be seen from Fig. 2, a plurality of the buried layers 14a to 14c are provided to be parallel to the surface of the substrate and arranged in a stacked manner. Each of these buried layers 14a to 14c has a first portion connected via the diffusion regions 27 to the drain 18 and, in addition, a second portion, which is connected to the diffusion regions 27 to the drain 18 and, in addition, a second portion, which is connected to the diffusion regions 26. Each of the second portions of the buried layers is also connected with each other, as can be seen in Fig. 2 of Disney.

In accordance with the above arrangement of Disney, when the high-voltage field-effect transistor of Fig. 1 is in the on-state, current flows from the source diffusion region 19 through the channel region 31 and then through p-type regions 16, 14 and 17 to drain diffusion region 18. In the context of Fig. 2, the current would flow from the source 19 through the channel 31 to the diffusion region 26 and via the buried layers 14a to 14c and the diffusion region 27 to the drain 18. As is discussed in paragraph [0021] on page 2, the charge in the p-type buried region is approximately twice as high as that of a conventional p-channel device, so that the resistance of the extended drain region is reduced to about one half of the conventional device. Thus, this portion of Disney and also the functionality thereof depicted in Fig. 2 is formed by the diffusion regions 18 to 27, i.e., some kind of buried portion of the drain is formed. In order to provide such functionality, both ends of the buried layer shown in Fig. 2 are electrically connected, one end to the drain 18 and the other end to the diffusion region 26.

B. Disney Does Not Disclose All the Limitations of Independent Claims 23 and 32

The Disney reference does not disclose all the limitations of claims 23 and 32. For example, with respect to claim 1 the Disney reference does not disclose “a plurality of regions of the second conductivity type, each of the plurality of regions having a first end and a second end, the first end being electrically connected to the drain area, and the second end being open and extending into a portion of the substrate having the first conductivity type”. Nothing in Disney teaches or suggests that one end of the buried layer could be open and extending into a portion of the substrate having the first conductivity type. Instead, as

discussed above, Disney teaches a specific kind of drain structure where both ends of a buried layer are electrically connected, one end to a drain and the other end to a diffusion region of the same conductivity type. Accordingly, Disney does not disclose all the limitations of claim 23, and the examiner's rejection of claim 23 under 35 U.S.C. § 102(b) should be withdrawn.

Claim 32 includes similar limitations to claim 23 with respect to “each of the plurality of regions having a first end and a second end, the first end being electrically connected to the drain area, and the second end being open and extending into a portion of the substrate having the first conductivity type”. Thus, for at least the same reasons as provided with respect to claim 23, Disney does not disclose all the limitations of claim 32.

For at least the reasons discussed above, Disney does not disclose all limitations of independent claims 23 and 32 of the present application. Accordingly, it is respectfully submitted that claims 23 and 32 are allowable and the examiner's rejection of claims 23 and 32 as anticipated by Disney under 35 U.S.C. § 102(b) should be withdrawn.

III. The Examiner's Rejection of Dependent Claims 25-31 and 33-35 Should Be Withdrawn

Dependent claims 25-31 and 33-35 depend from and incorporate all the limitations of one of allowable independent claims 23 or 32. Accordingly, it is respectfully submitted that dependent claims 25-31 and 33-35 are also allowable for at least the same reasons the independent claims 23 and 32 are allowable.

IV. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application, including pending claims 23 and 25-35, and new claims 36-43, is therefore respectfully requested.

In the event applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the applicant conditionally petitions therefore, and authorizes any fee deficiency to be charged to deposit account 13-0014.

Respectfully submitted,

A handwritten signature in black ink that reads "Russ Fowler" with a long horizontal flourish extending to the right.

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